Hochschule München University of Applied Sciences

# Courses in English
## Course Description

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| **Department** | 09 Engineering and Management |
| **Course title** | **AERODYNAMIC PRINCIPLES FOR AUTOMOTIVE DESIGN** |
| **Course number** | |
| **Hours per week (SWS)** | 3 |
| **Number of ECTS credits** | 4 |
| **Course objective** | Competence Level 2 „Understand“:<br>• Calculate or simulate a laminar flow field for a simpleshape (e.g. blunt body, cone, ball or block) at lowspeeds.<br>Competence Level 3 „Apply“:<br>• Describe and perform a simple aerodynamicsexperiment (designed by the students in teams)<br>Competence Level 4 „Analyse“:<br>• Analyse the flight properties of an object in theaerodynamics experiment<br>• Improve the flight properties |
| **Prerequisites** | Engineering Mathematics (Differential Equations) |
| **Recommended reading** | KATZ Joseph, ©2006, Race Car Aerodynamics: Designing for Speed, Bentley Publishers, ASIN: B00NPNUQX0<br><br>Anderson, John D., Fundamentals of Aerodynamics 5th Edition, McGraw-Hill Companies, Inc. ©2011 |
| **Teaching methods** | Lecture, Class Discussion, Demonstrations, Practical Exercises |
| **Assessment methods** | modA 60% (presentation & tasks)<br>schrP 40%<br>The module is assessed by a presentation (including team project work) and an exam |
| **Language of instruction** | English |
| **Name of lecturer** | Ms. Laura Brombach-Randall |
| **Email** | laura.randall@hm.edu |
| **Link** | |
| **Course content** | Part 1 – Basics of low-speed fluid dynamics:<br>• Do some experiments<br>• Figure out what’s going on<br>• Describe what’s going on mathematically<br>• Describe what is happening verbally<br>• Present your experiment<br><br>Part 2 – Automotive Design:<br>• Be able to discuss the ins-and-outs of wing design forautomotive purposes<br>• Heating/cooling units; underbelly of an automobile<br>• Exterior Design with various shapes<br>• Tour of a Car Manufacturer with an engineer as thetour guide – (hopefully, BMW or Audi) |
| **Remarks** | Attendance time: 45 hours<br>Private study, exam preparation: 75 hours |